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L3: Entry 3 of 4 File: JPAB Jun 3, 1994

PUB-NO: JP406153861A
DOCUMENT-IDENTIFIER: JP 06153861 A
TITLE: FLESH-REDUCING FOOD

PUBN-DATE: June 3, 1994

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APPL-NO: JP04333575
APPL-DATE: November 18, 1992

US-CL-CURRENT: 426/618
INT-CL (IPC): A23L 1/305; A23L 1/30; A23L 1/307

ABSTRACT:

PURPOSE: To provide a flesh-reducing food containing a branched α-cyclodextrin, γ-linolenic acid and a peptide having activated functionality and exhibiting remarkably excellent obesity-preventive effect or a body-weight increase preventive effect by the synergistic action of the above three components.

CONSTITUTION: The flesh-reducing food contains (A) a branched α-cyclodextrin, (B) γ-linolenic acid and (C) a peptide having activated functionality (preferably having an amino acid chain length of 8-10). The amounts of the components B and C are preferably 3-4 pts.wt. and 400-600 pts.wt. based on 100 pts.wt. of the component A, respectively. The component C is preferably produced by hydrolyzing a polypeptide by conventional method.

Previous Doc Next Doc Go to Doc#

PATENT ABSTRACTS OF JAPAN

(11)Publication number : **06-153861**
(43)Date of publication of application : **03.06.1994**

(51)Int.Cl. A23L 1/305
A23L 1/30
A23L 1/307

(21)Application number : **04-333575**
(22)Date of filing : **18.11.1992**

(71)Applicant : **NISSEI KOSAN KK**
(72)Inventor : **FUJITA TADASHI**

(54) FLESH-REDUCING FOOD

(57)Abstract:
PURPOSE: To provide a flesh-reducing food containing a branched α-cyclodextrin, γ-linolenic acid and a peptide having activated functionality and exhibiting remarkably excellent obesity-preventive effect or a body-weight increase preventive effect by the synergistic action of the above three components.
CONSTITUTION: The flesh-reducing food contains (A) a branched α-cyclodextrin, (B) γ-linolenic acid and (C) a peptide having activated functionality (preferably having an amino acid chain length of 8-10). The amounts of the components B and C are preferably 3-4 pts.wt. and 400-600 pts.wt. based on 100 pts.wt. of the component A, respectively. The component C is preferably produced by hydrolyzing a polypeptide by conventional method.

LEGAL STATUS

[Date of request for examination]	18.11.1992
[Date of sending the examiner's decision of rejection]	
[Kind of final disposal of application other than the examiner's decision of rejection or application converted registration]	
[Date of final disposal for application]	
[Patent number]	2075610
[Date of registration]	25.07.1996
[Number of appeal against examiner's decision of rejection]	
[Date of requesting appeal against examiner's decision of rejection]	
[Date of extinction of right]	

JAPANESE [JP,06-153861,A]

CLAIMS DETAILED DESCRIPTION TECHNICAL FIELD PRIOR ART EFFECT OF THE INVENTION EXAMPLE

[Translation done.]

DETAILED DESCRIPTION

[Detailed Description of the Invention]
[0001]
[Industrial Application] This invention relates to the food for lean figure.
[0002]
[Description of the Prior Art] Three sorts of compounds exist in a cyclodextrin from the difference in the molecular structure, and three sorts of compounds of gamma-cyclodextrin exist in alpha-cyclodextrin and beta-cyclodextrin list in more detail. Cyclodextrins, such as this, are used as a material of a food grade for many years, and especially beta-cyclodextrin is used for various kinds of applications based on the inclusion operation, for example, taste amelioration material, powdered alcohol, etc. However, since this beta-cyclodextrin is absorbed from the small intestine of the body by the slaking property matter, it tends to serve as excess of a nutrition, and it is very unsuitable as a material of the food for lean figure.
[0003] It **(ed) and it was announced recently that it is found out that the one-sort slack alpha-cyclodextrin of a cyclodextrin has the property which is hard to be digested depending on people's digestive enzyme, and it may be able to use it as a material of the food for lean figure. And having the operation whose alpha-cyclodextrin of this adsorbs and excretes free fatty acid alternatively unique within digestive organs succeedingly also came to be found out.
[0004] on the other hand, gamma-linolenic acid is well known for many years as matter which has fat metabolism, in addition is effective in adjustment of a cholesterol count and blood pressure etc. -- etc. -- it is known as suitable matter for various kinds of health maintenance.
[0005] Moreover, it was found out that a variegated physiological function and the complicated mechanism of action are one of those which carried out the adding-water molecule of the protein molecule with large molecular weight, and carried out depolymerize on the other hand, and positioning as an activity functionality peptide has accomplished.
[0006]
It is outline] to the purpose list of [invention. Although he has continued research about the food for lean figure from the former, this invention person is very suitable considering demonstrating obesity thru/or the weight increase prevention effectiveness of having excelled remarkably according to synergisms, such as this, as a header and food for lean figure, when using alpha-cyclodextrin and gamma-linolenic acid together especially among many compounds effective in various kinds of obesity prevention in this research. A certain thing was checked, and it applied for invention based on this, and was patented. Furthermore, in the continuing research, when replacing with alpha-cyclodextrin, and using alpha-cyclodextrin of branching and using together gamma-linolenic acid and an activity functionality peptide, a header and this invention were completed for the obesity prevention effectiveness improving still more remarkably according to the synergism of three persons, such as this.
[0007]
[Elements of the Invention] the food for lean figure of this invention -- alpha-cyclodextrin, the gamma-linolenic acid, and the activity functionality peptide of branching -- desirable -- the above-mentioned dextrin 100 weight section -- receiving -- gamma-linolenic acid 0.5 - 50 weight sections, and a peptide 10 - the 1000 weight sections -- they are a linolenic acid 3 - 4 weight sections, and the thing that carries out peptide 400-600 weight section content, and changes especially preferably.
[0008] As an alpha-cyclodextrin of branching used in this invention, each thing known from the former can use it. alpha-cyclodextrin of this branching may use the material which may use this independently and contains this. Moreover, concomitant use with non-branching alpha-cyclodextrin is also possible, and 0 - 45% of the ratio of non-branching alpha-cyclodextrin is suitable in this case at a weight ratio.
[0009] You may use it, the component thru/or matter, for example, the Oenotherae Biennis oil etc., etc. which may use this independently also as gamma-linolenic acid used in this invention, and contains this.
[0010] The activity functionality peptide used in this invention means what hydrolyzed the polypeptide by the usual approach, and this very thing is well-known. Activity means that the new property which cannot be found out joins the original protein by carrying out depolymerize in addition to the property as protein, and functionality shows that various operations of peptide original are held as they are. As a peptide, the amino acid chain length is about eight to ten thing preferably seven to about 12.

[0011] It makes it indispensable to use together the three above-mentioned kinds of compounds in this invention, and obesity prevention thru/or the weight increase prevention effectiveness of having excelled remarkably is demonstrated according to the synergism of three persons, such as this. this synergism -- the alpha-cyclodextrin 100 weight section of especially

branching -- receiving -- gamma-linolenic acid 0.5 - 50 weight sections -- especially -- desirable -- 3 - 25 weight section, and a peptide 10 - the 1000 weight sections -- especially, the 400 - 600 weight section comes out comparatively preferably, and it is demonstrated. This outstanding synergism is very clear also from the example of the after-mentioned experiment.
[0012] In this invention, various kinds of food or food add-in material at a predetermined rate is made to contain the three above-mentioned component, or both, such as this, may be conventionally cast to a suitable configuration, for example, a tablet, a pill, and granularity with various kinds of well-known add-in material if needed. It is not limited especially as the food which should be made to contain thru/or food add-in material, but can be used in the range where various kinds of things are large, for example, they can be illustrated, using wheat flour, food fibrin, a soybean meal, etc. as an example. Moreover, each thing used [in / as add-in material used in case size enlargement is carried out to a tablet, a pill, and granularity / this seed field] from the former can use it, for example, a lactose, grape sugar, starch, etc. can be mentioned as an example.
[0013] The example of an experiment for making the synergistic effect of this invention clearer and the example slack example of this invention are shown below.
[0014]
[Example(s) of Experiment] The male rat of 4 weeks old It divides into six groups so that the average weight may be set to 140g. To every six rats per each group It prescribed for the patient at a time once per 2.0 g/kg of feed which the degree boiled comparatively and was prepared in the stomach day at the group which corresponds, respectively, and except it, the same commercial cubed diet was made to take in freely, and it bred, and asked for the average weight of each group rat of ten days, 20 days, and 30 days after, and the weight increase depressor effect was measured. However, feed 6 is control.
[0015]
feed 1: -- alpha-cyclodextrin of branching ..... 50mg gamma-linolenic acid ..... 0mg an activity functionality peptide ..... 0mg amylum tritici ..... 505mg [0016]
feed 2: -- alpha-cyclodextrin of branching ..... 0mg gamma-linolenic acid ..... 5mg an activity functionality peptide ..... 0mg amylum tritici ..... 550mg [0017]
feed 3: -- alpha-cyclodextrin of branching ..... 0mg gamma-linolenic acid ..... 0mg an activity functionality peptide ..... 500mg amylum tritici ..... 55mg [0018]
feed 4: -- alpha-cyclodextrin of branching ..... 50mg gamma-linolenic acid ..... 5mg an activity functionality peptide ..... 500mg amylum tritici ..... 0mg [0019]
feed 5: -- alpha-cyclodextrin of branching ..... 0mg gamma-linolenic acid ..... 5mg an activity functionality peptide ..... 500mg amylum tritici ..... 0mg alpha-cyclodextrin ..... 50mg [0020]
feed 6: -- alpha-cyclodextrin of branching ..... 0mg gamma-linolenic acid ..... 0mg an activity functionality peptide ..... 0mg amylum tritici ..... 555mg [0021] This result is shown in the following tables 1-3. However, a front Naka numeric value expresses g.
[0022]
[Table 1]

群No.	実験開始前 平均体重(g)	10日後 平均体重(g)	20日後 平均体重(g)	30日後 平均体重(g)
1	139.5	181.6	240.4	279.1
2	139.6	180.0	241.1	276.6
3	140.4	169.2	233.0	281.4
4	141.1	140.9	168.3	193.0
5	140.0	146.4	178.5	207.8
6	140.3	194.2	273.0	321.1

[0023] However, Table 1 shows transition (g) of the average weight of each group rat.
[0024]
[Table 2]

群No.	実験開始前 体重差(g)	10日後 体重差(g)	20日後 体重差(g)	30日後 体重差(g)
1	−0.8	−12.6	−32.6	−42.0
2	−0.7	−14.2	−31.9	−44.5
3	+0.1	−25.0	−40.0	−39.7
4	−0.2	−53.3	−104.7	−128.1
5	−0.3	−47.8	−94.5	−113.3
6	0	0	0	0

[0025] However, Table 2 shows, an average weight difference (g), i.e., the group for control, with control of each group rat.
[0026]
[Table 3]

群No.	実験開始前 体重増減率	１０日後 体重増減率	２０日後 体重増減率	３０日後 体重増減率
1	0.994	0.935	0.881	0.869
2	0.995	0.927	0.883	0.861
3	1.001	0.871	0.853	0.876
4	0.999	0.726	0.616	0.601
5	0. 998	0.754	0.654	0.647
6	1.000	1.000	1.000	1.000

[0027] However, Table 3 shows the weight percent change (average weight of the average weight / control group of each group) of each group rat.
[0028] The 1st group which used alpha-cyclodextrin, the gamma-linolenic acid, and the activity functionality peptide of branching independently from the above result, respectively - the 3rd group, Although weight is decreasing compared with the 6th group of control, the decreasing rate is small, by the 4th group which used three persons together to this, weight increase depressor effect is accepted greatly and the synergistic effect is very clear also in any of ten days, 20 days, and 30 days after. Moreover, by the 5th group which did not use alpha-cyclodextrin of branching but used alpha-cyclodextrin, it compares with the 4th group and each of the weight increase depressor effect is falling.
[0029]
[Example]
[0030]
[Example 1] The alpha-cyclodextrin 20 weight section of branching, the Oenotherae-Biennis-oil 10 weight section containing 9 % of the weight of gamma-linolenic acid, and the peptide 100 weight section were blended with the lactose 100 weight section, and the food for lean figure was prepared as a granule.
[0031]
[Example 2] It mixed with natural juice powder in the lactose and the grape-sugar list, and the alpha-cyclodextrin 30 weight section of branching, the Oenotherae-Biennis-oil 10 weight section containing 9 % of the weight of gamma-linolenic acid, and the peptide 100 weight section were made with the tablet according to the conventional method.
[0032]
[Effect of the Invention] In the food for lean figure of this invention, since three persons of alpha-cyclodextrin of branching, gamma-linolenic acid, and an activity functionality peptide are contained, obesity prevention or the weight prevention effectiveness of having excelled remarkably is demonstrated according to the synergism of three persons, such as this. For this reason, it becomes the food which was extremely excellent as an object for lean figure, and is very effective in prevention of the various illnesses based on obesity or overweight.

[Translation done.]

PRIOR ART

[Description of the Prior Art] Three sorts of compounds exist in a cyclodextrin from the difference in the molecular structure, and three sorts of compounds of gamma-cyclodextrin exist in alpha-cyclodextrin and beta-cyclodextrin list in more detail. Cyclodextrins, such as this, are used as a material of a food grade for many years, and especially beta-cyclodextrin is used for various kinds of applications based on the inclusion operation, for example, taste amelioration material, powdered alcohol, etc. However, since this beta-cyclodextrin is absorbed from the small intestine of the body by the slaking property matter, it tends to serve as excess of a nutrition, and it is very unsuitable as a material of the food for lean figure.
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[Table 1]

群No.	実験開始前 平均体重(g)	１０日後 平均体重(g)	２０日後 平均体重(g)	３０日後 平均体重(g)
1	１３９．５	１８１．６	２４０．４	２７９．１
2	１３９．６	１８０．０	２４１．１	２７６．６
3	１４０．４	１６９．２	２３３．０	２８１．４
4	１４１．１	１４０．９	１６８．３	１９３．０
5	１４０．０	１４６．４	１７８．５	２０７．８
6	１４０．３	１９４．２	２７３．０	３２１．１

[0023] However, Table 1 shows transition (g) of the average weight of each group rat.
[0024]
[Table 2]

群No.	実験開始前 体重差(g)	１０日後 体重差(g)	２０日後 体重差(g)	３０日後 体重差(g)
1	－０．８	－１２．６	－３２．６	－４２．０
2	－０．７	－１４．２	－３１．９	－４４．５
3	＋０．１	－２５．０	－４０．０	－３９．７
4	－０．２	－５３．３	－１０４．７	－１２８．１
5	－０．３	－４７．８	－９４．５	－１１３．３
6	０	０	０	０

[0025] However, Table 2 shows, an average weight difference (g), i.e., the group for control, with control of each group rat.
[0026]
[Table 3]

群No.	実験開始前 体重増減率	１０日後 体重増減率	２０日後 体重増減率	３０日後 体重増減率
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6	1.000	1.000	1.000	1.000

[0027] However, Table 3 shows the weight percent change (average weight of the average weight / control group of each group) of each group rat.
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[Translation done.]

EFFECT OF THE INVENTION

[Effect of the Invention] In the food for lean figure of this invention, since three persons of alpha-cyclodextrin of branching, gamma-linolenic acid, and an activity functionality peptide are contained, obesity prevention or the weight prevention effectiveness of having excelled remarkably is demonstrated according to the synergism of three persons, such as this. For this reason, it becomes the food which was extremely excellent as an object for lean figure, and is very effective in prevention of the various illnesses based on obesity or overweight.

[Translation done.]

EXAMPLE

[Example]
[0030]
[Example 1] The alpha-cyclodextrin 20 weight section of branching, the Oenotherae-Biennis-oil 10 weight section containing 9 % of the weight of gamma-linolenic acid, and the peptide 100 weight section were blended with the lactose 100 weight section, and the food for lean figure was prepared as a granule.

[0031]
[Example 2] It mixed with natural juice powder in the lactose and the grape-sugar list, and the alpha-cyclodextrin 30 weight section of branching, the Oenotherae-Biennis-oil 10 weight section containing 9 % of the weight of gamma-linolenic acid, and the peptide 100 weight section were made with the tablet according to the conventional method.

[Translation done.]